

of *Argiope* attached to Fuci, though more commonly attached to stones."

It therefore appears that the habitat I gave for *Kraussia rubra* is not quite peculiar to that species, though it certainly is the usual habitat of *Kraussia*, while in other lamp-shells attachment to seaweeds is the exception.

On the Connexion which exists between the Nervous System and the Muscular System in the Helices. By M. SICARD.

In his celebrated memoir on the slug and the snail, Cuvier has described the *submission* (to use the term which he has employed) of the nervous to the muscular system. It is established, in his opinion, by the *close cellulosity* which unites the retractor muscles of the great tentacles to the envelope of the cerebroid ganglia, and the principal lobes of the retractor muscles of the foot to that of the subœsophageal ganglia. Since then, every one abides by that assertion; nevertheless the union of the two systems is much more intimate than was indicated by Cuvier, and histological study shows that they are directly united with each other. It is not, in fact, simply cellular tissue which joins the nervous centres to the neighbouring muscles; microscopical examination discloses, in this tissue, the presence of smooth muscular fibres; so that the nervous system is surrounded by an actual expansion of the muscular apparatus.

In certain species the arrangement is very manifest, particularly in *Zonites algirus*—that old *Helix* of which a great many malacologists justly make a distinct genus. In it clearly marked membranous muscles surround the œsophageal collar. From the upper surface of the retractor muscle of the foot, from the outside, and for nearly half its length, there starts on each side a little muscular band two millimetres in width, which soon divides into two lobes, the outer of which, the external, goes to the superior, and the other to the small tentacle; these muscles are known as the retractor muscles of the tentacles. Now the little band which constitutes the second of these muscles enlarges, spreads like a fan on the internal side to unite with the neurilemma of the œsophageal collar, and thus form with its fellow a sort of muscular framing; then this muscle goes to the little tentacle with the nerve which is destined for it. On the other hand the muscular bundle which goes to the superior tentacle receives into its interior the tentacular nerve, which, from its point of origin on the subœsophageal ganglion to the point where it enters into the cavity of the retractor muscle, is accompanied by a *muscular* band, which envelops it and which thus unites the nervous centres to this muscle.

The connexion just described, of the retractor muscles of the tentacles with the œsophageal collar, and the union of these two muscles behind into a single primitive bundle, would make it more proper to designate this muscular whole the common retractor muscle of the tentacles and nervous collar. The action, however, is not so simple as this denomination would seem to indicate; for if

during the retreat of the animal all these parts act in order to produce the retraction, they do not act all in the same way during its unfolding. Then the portions placed in front of the nervous collar intervene, at least passively, in its protraction. These muscular bands having on one side their points of attachment to the integuments, they must, as the latter are carried forward, aid in drawing the collar into this movement if they did not act only as simple ligaments.

This is not all; the muscular expansion which surrounds the nervous collar furnishes to the nerves which start from the supra- and subœsophageal ganglia a regular contractile sheath. This is often considerable, and then, if the nerve be examined by the microscope, under a low power, or by the help of a simple lens, it presents the appearance of an opaque, more or less flexuous cord in the middle of this envelope, which constitutes an *external neurilemma* for it, the histological composition of which must detain us a moment. In the first place we find in it a superficial conjunctive layer, formed by voluminous cells, the mean diameter of which is $\cdot 05$ millimetre, and which is, up to a certain point, comparable to the *adventitia* of the vessels. Below this cellular membrane we recognize the presence of a muscular layer formed of fine and very elongated fibres arranged longitudinally. It is easy to ascertain the existence of these muscular elements by macerating, for three or four days, the collar and the nerve which starts from it in a mixture of equal parts of hydrochloric and nitric acids, diluted with ten or twelve parts of water. It is then easy to separate them.

Immediately round the nerves may be remarked a second conjunctive element, or inner neurilemma, composed of cellular elements, but less voluminous. These cells are about $0\cdot 025$ millimetre in diameter.

This double neurilemmatic envelope has not yet been indicated, so far as we know, in the animals under consideration. Leydig has observed it in the Arthropoda and in the Annelida, where the external neurilemma is represented by the ventral vessel; he has recognized, particularly in the earthworm, the presence of muscular elements; but we have nowhere seen the existence of these elements indicated in the neurilemma of the Mollusca. According to Leydig, it takes that cellular form of conjunctive tissue which is seen elsewhere among the organs. This is only correct with regard to the superficial cellular layer; and what we have said shows how much more complex is the composition of this neurilemma.

The existence of muscular fibres in the sheath which encloses the nerve has the effect of producing an elongation and shortening of this *musculo-nervous* cord; and, indeed, when there is a contraction, the flexuosities described by the nerve in its envelope are more marked the stronger this contraction is; in the state of relaxation, on the contrary, the nerve follows a rectilineal direction.

It is plain that this peculiar musculature of the nerves has a manifest physiological relation with the intimate connexion that we have indicated between the nervous collar and the muscular

apparatus. In consequence of this connexion, in fact, the nervous centres connected with the muscles suffer some displacements in relation to the changes of form that the body undergoes when the animal retracts or expands itself; and the nerves themselves, by virtue of the muscular envelope with which they are provided, being able to elongate or shorten themselves, form active bands, which intervene in the modifications which the movements of the animal cause. — *Comptes Rendus*, September 30, 1872, pp. 769–771.

On *Delphinus Desmarestii*, Risso (*Aliama Desmarestii*, Gray).

By Dr. J. E. GRAY, F.R.S.

Risso, in his ‘*Histoire Naturelle de l’Europe Méridionale*,’ describes and figures a species of dolphin under the name of *Delphinus Desmarestii* (vol. iii. p. 24, t. 2. f. 3). As the figures of the two dolphins on the preceding plate are accurate, and his figures in general reliable, and the figure itself agrees with the description, I am inclined to regard it as correct until it is proved otherwise. It has been considered the same as *Ziphius cavirostris* of Cuvier, a ziphioid whale. It is so unlike all the other ziphioid whales known that it may be considered one of the whales requiring further examination. Instead of having the rounded head and short cylindrical beak and small pectoral and dorsal fin common to all the ziphioid whales, it has an elongated, conical, tapering head, acute in front, with two teeth produced in front of the lower jaw, elongate-lanceolate pectoral fins low down on the sides of the body, like the *Grampus* and *Globiocephalus*, and a large elongated truncated dorsal fin; and the body is marked with a multitude of irregularly placed white lines, as in *Grampus*. The female described and figured was nearly 20 feet long.

In the P. Z. S. 1864, p. 242, I proposed a genus for this dolphin under the name of *Aliama*; but I unwisely placed the *Hyperoodon de Corse*, Doumet, Bull. Soc. Cuvier. 1842, p. 207, t. 1. f. 2, and *Delphinus Philippii*, Cocco, Erich. Arch. 1846, p. 204, t. 4. f. 6, which are both true ziphioid whales, probably belonging to the genus *Epiodon*, as synonyma of the same species. Most probably Doumet’s *Hyperoodon de Corse* is the animal of the skull described as *Ziphius cavirostris* of Cuvier; if it is the *Ziphius de Corse* of Gervais (Ostéog. Cét.), which appears to be a female animal, it is interesting as showing that the inner side of the intermaxillaries of the female animals are dilated and turned up.

This whale has been confounded with *Delphinus Desmarestii* under the name of *Epiodon Desmarestii* (see Suppl. Cat. Seals and Whales, p. 98), figured by Gervais, which differs from all other *Petrorhynchi* in the inner margin of the intermaxillary bones not being nearly so much elevated behind as in that genus, and not elevated but rounded in front, and margining the linear vomer; while in *Petrorhynchus* the inner edge of the intermaxillaries is dilated, forming a well-marked concavity round the nostrils, and much elevated on the sides, forming a thin hood over each side of the much-swollen vomer.